

XXVI.—*Note on a Couple of Abnormalities.* By W.
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[Plate III.]

AMONGST the large number of crayfish (*Astacus fluviatilis*) dissected annually in the zoological classes here I have noticed from time to time certain abnormalities in regard to the genital apertures in females, usually a doubling of the pore on one side—that is, in addition to the normal pore on the base of the 11th appendage there is a second pore on that of the 12th.

A short time ago (Nov. 24, 1890) one of my students drew my attention to a female specimen, which, in addition to the normal genital apertures, presented a pair of apertures on the bases of the 13th appendages, occupying, that is, the normal position of the genital apertures of a male (see Pl. III. fig. 1). On dissecting the specimen I find that the ovary is normal, but that there are *two oviducts on each side, one passing into the base of the 11th appendage, the other into that of the 13th appendage* (see fig. 2) to the so-called “male pore.” There appears to be no trace of a testis and no evidence of an hermaphrodite condition. The abdominal appendages are normally female. Taken in conjunction with the abnormalities which I had already observed, this gives a possibility of a pore and duct for each of the last three ambulatory appendages.

It is still a moot point whether genital ducts in the Arthropoda are derived from nephridia; but there is some evidence tending to support this idea. In *Peripatus* there is a pair of nephridia in each of the leg-segments, except in the segment containing the genital duct (in *P. novæ zelandiæ*), which opens in the same position as a nephridium and which Gaffron has shown possesses an “end-sac” similar to that of the nephridia. In *Lepas*, amongst the Crustacea, Hoek (in ‘Challenger’ Reports) figures sections through the “segmental organ” (“shell-gland”) of the 2nd maxillary segment, and through the terminal portion of the oviduct, at the base of the next appendage (first cirrus), and points out the similarity between them. In *Nebalia* the “shell-gland” of the maxillary segment and the “green-gland” of the antennary segment coexist (Claus, Arb. Zool. Inst. Wien, vol. viii. 1889); in other Crustacea one of these glands is present, but not the other.

These and other facts appear to point to the possession originally by Arthropoda of a pair of segmental organs

("nephridia") in each segment; most are suppressed in the Crustacea, though those of the second antennary segment and of the second maxillary segment remain, and with the genital ducts in the 11th and 13th (and 12th in abnormal forms) help to fill up the series.

It is of course for such suggestions as these that the present abnormality is worthy of record.

The second case is that of a common earthworm—*Lumbricus herculeus*, Savigny (= *L. agricola*, Hoffmeister). I have examined some thousands of specimens of this species for class-work and other purposes, but this is the only case of an *asymmetrical* condition that has come under my notice*. Externally the asymmetry affects the male and female apertures (see fig. 3); both these are normally placed on the animal's left side, *i. e.* the oviduct opens on the 14th segment, the sperm-duct on the 15th. On the *right* side, however, each of these pores is one segment in front, *viz.* on the 13th and 14th segments.

The clitellum is normal and symmetrical.

Of the internal organs (fig. 4) both genital system and alimentary system present asymmetry in certain segments. The organs of the left side are normally placed and fully developed; but *on the right* there is only *one spermatheca*, lying in segment ix.; and instead of the usual three sperm-sacs only those in segments ix. and xi. are present; *that of the twelfth segment is absent*. The ovary of this side is in segment xii. instead of in xiii. The testes and funnels are normal on both sides.

Of the alimentary system the calciferous glands are affected on the right side, that of segment xii. being absent.

With regard to abnormalities in earthworms, Beddard has recorded a large number of cases for *Perionyx excavatus*†, and has recently noted a case, *e. g.* *Perichaeta Forbesi*‡, in which the spermathecae are asymmetrically developed (and this in each of the two specimens in his possession), there being two on one side and one on the other, in the same segment; I have already noted a similar condition in *Microchæta Rappi*§.

Michaelsen ||, in a just-published paper, records certain

* A second similar example came under my observation while this note was in the press.

† Proc. Zool. Soc. 1886, p. 308.

‡ Proc. Zool. Soc. 1890, p. 65.

§ Quart. Journ. Micr. Sci. xxvi.

|| Jahrb. d. Hamburg. Wiss. Anat. viii.

asymmetrical and abnormal positions of the genital pores in *Allurus*, sp.

For the present I content myself with merely noting without comment these interesting abnormalities.

EXPLANATION OF PLATE III.

Astacus fluviatilis.

Fig. 1. View of ventral surface of abnormal specimen of female crayfish, sufficient to show the position of the second genital aperture (*o.p.* 2) on each side, *o.p.* 1 being the normal oviducal pore; X., XI., XII., XIII., indicate the last four ambulatory limbs, which are represented as cut short; *Ab.* 1 the first abdominal sternum with normal female appendages.

Fig. 2. Side view of the same crayfish partially dissected; the hinder part of the carapace (*ca*) has been removed, the epimeron (*ep*) and gills have been cut away; the bases of the ambulatory appendages (10, 11, 12, 13) are represented; *o* is the normal ovary, *o.d.* 1 the normal oviduct, *o.d.* 2 the accessory oviduct passing into appendage 13; *Li.*, liver, underlying ovary; *Ab.* 1, *Ab.* 2, the first and second abdominal segments.

Lumbricus herculeus.

Fig. 3. Ventral view of segments XII. to XVI., showing on the animal's left side the normal oviducal pore (♀) and spermiducal pore (♂), and on the right side the abnormal position of these apertures.

Fig. 4. Dissection of segments IX. to XIII., to show the asymmetrical condition of internal structures. The normal condition obtains on the left side, the abnormal on the right; *spth.*¹, *spth.*², the spermathecae; *ov.*, abnormally placed ovary; *cal.*, calciferous gland; *æs.*, œsophagus. None of the structures have been cut or removed, the calciferous gland and sperm-sac of segment XII. being absent.

XXVII.—*Natural History Notes from H.M. Indian Marine Survey Steamer 'Investigator,' Commander R. F. Hoskyn, R.N., commanding.*—No. 21. *Note on the Results of the last Season's Deep-sea Dredging.* By J. WOOD-MASON, Superintendent of the Indian Museum, and Professor of Comparative Anatomy in the Medical College of Bengal, and A. ALCOCK, M.B., Surgeon I. M. S., Surgeon-Naturalist to the Survey.

[Concluded from p. 202.]

Family **Inachidæ.**

PLATYMAIA, Miers.

35. *Platymaia Wyville-Thomsoni*, Miers.

Platymaia Wyville-Thomsoni, Miers, 'Challenger' Brachyura, 1886, p. 13, pl. ii. fig. 1.

Three specimens (one male and two ovigerous females), from Station 56, 240 to 220 fathoms.

The male measures:—